**Final**

# Travis Air Force Base
# Environmental Restoration Program
# Remedial Program Manager's
# Meeting Minutes

## 20 February 2013, 0930 Hours

Mr. Mark Smith, Travis Air Force Base (AFB), conducted the Remedial Program Manager's (RPM) meeting on 20 February 2013 at 0930 hours, at Travis AFB, California. Attendees included:

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| • Mark Smith | Travis AFB |
| • Glenn Anderson | Travis AFB |
| • Lonnie Duke | Travis AFB |
| • Gregory Parrott | Travis AFB |
| • Dezso Linbrunner | United States Army Corp of Engineers (USACE) Omaha District |
| • Adriana Constantinescu | California Regional Water Quality Control Board (RWQCB) |
| • Jose Salcedo | California Department of Toxic Substances Control (DTSC) |
| • Nadia Hollan Burke (via phone) | United States Environmental Protection Agency (USEPA) |
| • Sharon Halper (via phone) | Techlaw, Inc |
| • Mike Wray | CH2M HILL |
| • Tony Chakurian | CH2M HILL |

Handouts distributed at the meeting and presentations included:

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| • Attachment 1 | Meeting Agenda |
| • Attachment 2 | Master Meeting and Document Schedule |
| • Attachment 3 | SBBGWTP Monthly Data Sheet (January 2013) |
| • Attachment 4 | CGWTP Monthly Data Sheet (January 2013) |
| • Attachment 5 | Presentation: 2012 Travis AFB Technology Demonstrations Performance Monitoring Update |
| • Attachment 6 | Presentation: Program Update: Activities Completed, In Progress and Upcoming |

## 1. ADMINISTRATIVE

### A. Previous Meeting Minutes

The 16 January 2013 RPM meeting minutes were approved and finalized as written.

### B. Action Item Review.

Action items from January were reviewed.

Action item 1 still open: Travis AFB to research beneficial reuse of treated water. AFCEE is in agreement with treated water reuse using Defense Environmental Restoration Account (DERA) funds under the authority of a "net-zero policy" for the Air Force. Update, 16 January 2013: Mr. Duke said that an Air Force energy reduction contractor is looking into the cost of installing a pipe to convey treated water from the central plant to the duck pond.

### Master Meeting and Document Schedule Review (see Attachment 2)

The Travis AFB Master Meeting and Document Schedule (MMDS) was discussed during this meeting (see Attachment 2).

#### Travis AFB Annual Meeting and Teleconference Schedule

— The next RPM meeting will be held on 20 March 2013 at 0930 hours.

#### Travis AFB Master Document Schedule

— Groundwater Record of Decision (ROD): No change to the schedule. Mr. Anderson asked the agencies if their review was going in accordance with the schedule. Ms. Constantinescu said RWQCB comments will be submitted according to the schedule. Mr. Salcedo/DTSC and Ms. Burke/EPA said they might need an additional week or two. Mr. Anderson requested DTSC and EPA to notify Travis AFB in writing if they expect more than a one week delay.

— 3rd Five-Year Review: No change to the schedule. Mr. Anderson said the draft submittal for agency review may be delayed depending on the number of comments from the agencies on the draft ROD. The primary focus will be getting the ROD finalized. Mr. Smith said the draft submittal might be pushed back one month to April. Ms. Burke cautioned to be careful of the statutory deadline requirements for the Five-year review. Mr. Smith stated that the previous Five-year review was issued in September.

— Potrero Hills Annex: (FS, PP, and ROD): No new information and no change to the schedule.

— Old Skeet Range Action Memorandum: The TBD dates have been populated. Draft to Agencies will to go out this afternoon, after RPM meeting. Mr. Anderson announced document review priority: ROD, 5-year review, then the Old Skeet Range Action Memorandum. If the agencies need an extension for their review of the Action Memorandum, that would be acceptable.

— Vapor Intrusion Update Technical Memorandum: The final due date has been changed to 15 February 2013 to reflect the actual date the document went final.

— Quarterly Newsletter (January 2013): No change to the schedule. Mr. Anderson will follow up with paper copies.

— Groundwater Remediation Implementation Status Report: No change to schedule.

— Kinder Morgan LF044 Land Use Control Report: New Document. Dates are TBD. Mr. Anderson said Kinder Morgan will be submitting a CD to Travis AFB that documents their fuel tank farm construction. Travis AFB will use some of the information documented to prepare the draft report for the Land Use Control Report.

— 2012 Groundwater Sampling and Analysis Program Technical Memorandum: Moved to history.

## 2. CURRENT PROJECTS

### Treatment Plant Operation and Maintenance Update

Mr. Duke reported on the treatment plant status.

**South Base Boundary Groundwater Treatment Plant (see Attachment 3)**

The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 98.6% uptime, and 1.7 million gallons of groundwater were extracted and treated during the month of January 2013. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 43.6 gallons per minute (gpm). Electrical power usage was 2,520 kWh and approximately 3,452 pounds of $CO_2$ were created (based on DOE calculation). Approximately 1.52 pounds of volatile organic compounds (VOCs) were removed in January. The total mass of VOCs removed since startup of the system is 435 pounds.

Optimization Activities: No optimization activities to report for the month of January.

**Central Groundwater Treatment Plant (see Attachment 4)**

The Central Groundwater Treatment Plant (CGWTP) performed at 89.6% uptime with approximately 1.3 million gallons of groundwater extracted and treated during the month of January 2013. All treated water was diverted to the storm drain. The average flow rate for the CGWTP was 31.0 gpm. Electrical power usage was 2,104 kWh for all equipment connected to the Central plant, and approximately 2,882 pounds of $CO_2$ were generated. Approximately 4.40 pounds of VOCs were removed from groundwater by the treatment plant in January. The total mass of VOCs removed since the startup of the system is 11,313 pounds.

Optimization Activities for WTTP: The WTTP remains off line since it was shut down in April 2010 for the ongoing rebound study. No additional optimization activities to report for the month of January.

Optimization Activities for CGWTP: No optimization activities to report for the month of January.

**Site ST018 Groundwater (MTBE) Treatment Plant (attachment not available)**

The Site ST018 (MTBE) Treatment Plant (ST018 GWTP) report was not available for this meeting. The laboratory is in the process of validating the sample data.

## 3. Presentations

### 2012 Travis AFB Technology Demonstrations Performance Monitoring Update (see Attachment 5)

Mr. Chakurian reported on the 2012 Travis AFB Technology Demonstrations Performance Monitoring Update. See attachment 5 for maps and graphs details. Highlights included:

Performance Monitoring Results Summary for sites: SS015 Emulsified Vegetable Oil (EVO) Injection, SS016 Bioreactor, SD036 EVO Injection, SD037 EVO Injection, DP039 Bioreactor and DP039 Biobarrier.

EVO Site SS015: Over the two-year demonstration period, the data collected in the injection area wells are showing total Chlorinated Volatile Organic Compounds (CVOC) reductions of 99%, and cis-1,2-DCE continues to degrade without significant vinyl chloride accumulation. A monitoring well located 75 feet downgradient of the Emulsified Vegetable Oil (EVO) injection area has seen a combined TCE and cis-1,2-DCE decrease of 90%; the design radius of influence for EVO was 20 feet, so we are seeing greater EVO migration. At one cross gradient well, concentrations of cis-1,2-DCE and vinyl chloride are increasing; daughter products are increasing, additional monitoring is needed to evaluate the success of the Enhanced Reductive Dechlorination (ERD) treatment for that particular area. Total Organic Carbon (TOC) remains in excess of 100 µg/L in the injection wells and is sustaining ERD. Ms. Burke asked the average depth of the wells. Mr. Chakurian answered about 20 to 25 feet.

Bioreactor Site SS016: After a two-year period of operating the bioreactor, we are seeing removal of over 99% of the total CVOCs entering the bioreactor. Concentrations of TCE and cis-1,2-DCE in the horizontal ‘feeder’ extraction well have increased; could be a result of the

groundwater exiting the bioreactor and into the highly contaminated bedrock. CVOCs, including vinyl chloride, analyzed in the monitoring well located at the bottom of the bioreactor, are almost completely remediated. TCE concentrations in a well located 20 feet downgradient from the bioreactor decreased significantly from November 2011 to November 2012: decrease from 47,800 µg/L to 104 µg/L. There has been an increase in TOC, cis-1,2-DCE, vinyl chloride and methane. A well located upgradient of the bioreactor is showing an increase in TOC, cis-1,2-DCE, and vinyl chloride, indicating some mounding around the bioreactor.

Ms. Halper asked how Travis AFB plans to deal with the cis-1,2-DCE. Mr. Anderson replied once the ROD is signed and the new PBC contract is awarded, there will be designs to modify and/or enhance the demonstration performance monitoring remedies. Mr. Anderson gave one example of optimizing a demonstration project; the first bioreactor located at DP039 utilized immature mulch which was not as effective as it could be. Lesson learned: apply older mature mulch which is a better source of carbon. Mr. Smith added that site SS016 is flowing toward the runway so there is no human health risk, and only one structure, used for storage, that is in its path. Ms. Burke asked if the first GRISR report will focus on the initial demonstration goals, or do you see the report supporting optimization efforts. Mr. Duke said the report will show the data already collected as of December 2012. Mr. Wray said it is important to note that ERD and Bioreactor projects are designed to address TCE, cis-1,2-DCE and vinyl chloride and the data shows dramatic decreases in all three and, moreover, no stalling.

EVO Site SD036: Over the two-year demonstration period, we have seen significant reductions of TCE in the injection area and an increase in cis-1,2-DCE. TOC supply in the injection area remains high enough to sustain ERD. Little vinyl chloride has accumulated and ethene is being detected. The average TOC concentration decreased from 460 mg/kg to 83 mg/kg in the injection wells from November 2011 to November 2012. An influx of sulfate is likely responsible for the TOC consumption. This indicates sulfate is starting to compete and signifies another round of EVO injections may be necessary in the future. Mr. Wray said this is another example that demonstrates the success of the EVO injections. When more injections are needed, the existing injection wells will be used (as appropriate), and new injection wells will also be added as needed.

EVO Site SD037: After two years the TCE in the EVO injection area is showing significant reductions. Increases in cis-1,2-DCE and vinyl chloride are apparent in target wells. A total reduction of over 99% of CVOCs recorded in one well, and 76% of CVOCs in another well. High levels of methane indicate reducing conditions are sufficient for complete de-chlorination in the injection area. TOC supply in the injection area remains high enough to sustain ERD. The average TOC remaining in the seven injection wells is 276 mg/L.

Mr. Chakurian pointed out at DP039 the three different technology demonstration remedies at this site (slide 7). The Bioreactor is located in the northwestern ‘source area’, the biobarrier is located in the southeast end of the site, and the phytoremediation zone is located in the central area.

Bioreactor Site DP039: Over the four year demonstration period TCE and total CVOC reductions of over 99% within 30 feet of the source area have been observed. The most contaminated well in the source area recorded a reduction in TCE concentrations from 8,000

µg/L in December 2008 to 51 µg/L in December 2012. Similar CVOC reductions have been observed in other wells. Minimal vinyl chloride has been detected outside of the bioreactor; the maximum current concentration is 7.7 µg/L. There was an unexpected TOC increase generated within the bioreactor as observed in December 2012. TOC increased from 14.7 mg/L to 134 mg/L. The solar powered pump was removed from one extraction well and installed into a more distant monitoring well in September 2012 to expand the recirculation of groundwater further downgradient of the bioreactor. Influent TCE concentration to the bioreactor from the converted well was 878 µg/L in December 2012. TCE concentrations at the bottom of the bioreactor is <0.5 µg/L. The bioreactor continues to remove over 99% total CVOCs from the influent.

Biobarrier Site DP039: Over the two years since the EVO injection, the data collected shows almost total TCE destruction, minor cis-1,2-DCE accumulation and very little vinyl chloride accumulation along the biobarrier line of injection wells. There is sufficient TOC in the biobarrier injection wells to support ERD of TCE, cis-1,2-DCE and vinyl chloride that passes through the barrier. The average TOC levels measured in the 12 injection wells was over 260 mg/L. Downgradient, about 20 feet from the injection wells, a monitoring well is showing a significant increase in methane and TOC. No impact has been observed from the biobarrier of TCE concentrations in the downgradient wells located 80 to 120 feet from the injection wells. Mr. Wray said to accurately monitor the effectiveness of the biobarrier, additional monitoring wells need to be installed closer to the biobarrier.

Mr. Wray added the well pairs are shallow/deep collection points and the data used in contouring the plume on the map is the highest concentration, which could be either from the shallow or deep screened interval.

**Program Update: Activities Completed, In Progress and Upcoming (see Attachment 6)**

Mr. Wray reported on the status of field work and documents which are completed, in progress, and upcoming. Updates from the briefing this month included:

Completed Documents: Vapor Intrusion Assessment Update Technical Memorandum.

Completed Field Work: Replace electrical wiring for well field at Site SS030.

In-Progress Documents: Groundwater Record of Decision.

In-Progress Field Work: Replace battery banks at ST018 Groundwater Treatment Plant.

Upcoming Documents: Old Skeet Range Action Memorandum, 3rd Five-Year Review, 2012 Annual Groundwater Remediation Implementation Status Report, Kinder Morgan LF044 Land Use Control Report.

Upcoming Fieldwork: Annual Groundwater Remediation Implementation Program (GRIP) Sampling Event (April).

## 4. New Action Item Review

None.

## 5. PROGRAM/ISSUES/UPDATE

Mr. Smith announced the Air Force Civil Engineering Center (AFCEC) is looking at closing as many sites administratively by combining them into one operable unit, i.e., FT005 groundwater could be merged with SS029 groundwater and administratively close FT005. AFCEC has asked Travis AFB to present this information to the agencies and to gather feedback. Note: the ROD does not take this concept into account. Mr. Salcedo said that it would be complicated for DTSC because when a site is reported closed they are required to report how many acres are freed up for reuse, etc. Mr. Smith said he will follow up with an email giving more detail to the agencies.

## 6. Action Items

| Item # | Responsible | Action Item Description | Due Date | Status |
|---|---|---|---|---|
| 1. | Travis AFB | Research beneficial reuse of treated water and give update. Update (13 June 2012): AFCEE is in agreement with treated water reuse using Defense Environmental Restoration Account (DERA) funds under the authority of a "net-zero policy" for the Air Force. Update (15 August 2012): Mr. Duke reported that irrigation lines were destroyed by a communications contractor and not repaired because the system was inactive. Travis AFB will get the system design information to determine if the trunk line is still intact and repairs can be made to get the system running. Update, 16 January 2013: Mr. Duke said that an Air Force energy reduction contractor will look into the cost of installing a pipe to convey treated water from the | February 2013 | Open |

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| | | central plant to the duck pond. | | |